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IMAGES IN INTERVENTION

First Reported Use of the Repositionable Lotus Valve System for a Failing Surgical Aortic Bioprosthesis

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An 80-year-old man with a history of atrial fibrillation (on warfarin) and significant short-term memory impairment presented with symptoms of acute decompensated cardiac failure 8 years after undergoing surgical aortic valve replacement with a 25-mm Carpentier-Edwards SAV bioprosthesis (Edwards Lifesciences, Irvine, California) inserted for severe aortic stenosis. Transesophageal echocardiography (TEE) demonstrated severe valvular aortic regurgitation (AR) (**Figure 1A**) with a borderline dilated left ventricle and normal ejection fraction. In view of comorbidities and general frailty, he was deemed to be at high surgical risk by the heart team, and therefore, transcatheter aortic valve replacement (TAVR) was recommended.

Fluoroscopic and echocardiographic guidance was used to position a 23-mm Lotus device (Boston Scientific, Natick, Massachusetts). Initial attempts at positioning were too low (**Figure 1B**), and so after partial resheathing (**Figure 1C**), the device was deployed optimally within the bioprosthesis, extending 3 mm into the left ventricular outflow tract (**Figure 1D**). Post-procedural aortogram and TEE revealed no AR (**Figure 1E**), no mitral valve impingement, and no coronary obstruction.

Valve-in-valve (VIV) TAVR has been shown to be a feasible and clinically effective approach to the management of patients with degenerated surgical aortic bioprostheses. However, with the use of Edwards SAPIEN (Edwards Lifesciences) and CoreValve (Medtronic, Minneapolis, Minnesota) devices, VIV TAVR is associated with a high rate of malpositioning (15%), which may necessitate attempts at device retrieval, or implantation of a second TAVR device (1). We report here for the first time a successful VIV TAVR procedure using the Lotus Valve System. Its unique design enables repositioning, resheathing, and retrieval, even in the fully expanded and functioning position. These features may be of particular use in cases where the potential risk of device malpositioning is high.

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From the MonashHEART, Monash Medical Centre, Southern Health, Clayton, Victoria, Australia. Dr. Lockwood receives consulting fees from Boston Scientific. Prof. Meredith receives consulting fees from and is on the Strategic Advisory Board for Boston Scientific. Drs. McCormick and Gooley have reported that they have no relationships relevant to the contents of this paper to disclose.

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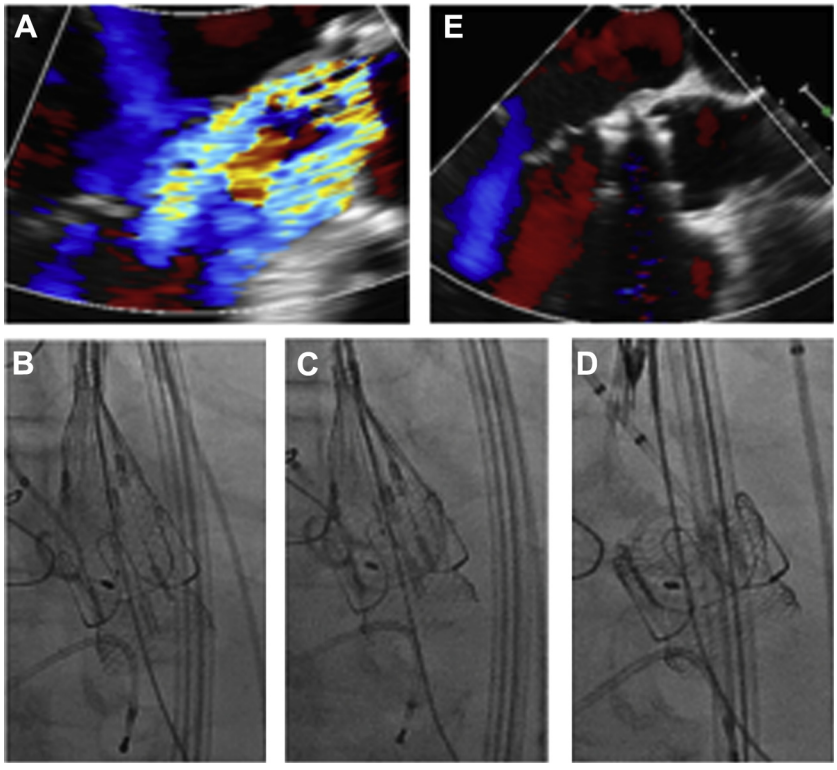
FIGURE 1 Intraprocedural TEE and Fluoroscopy



(A) Pre-procedural severe valvular bioprosthetic aortic regurgitation. Initial positioning of the 23-mm Lotus device was too low **(B)**, so partial resheathing was performed **(C)**, allowing optimal final positioning within the bioprosthesis **(D)**. **(E)** No significant aortic regurgitation post-procedure. TEE = transesophageal echocardiography.

REFERENCE

1. Dvir D, Webb J, Brecker S, et al. Transcatheter aortic valve replacement for degenerative bioprosthetic surgical valves: results from the global valve-in-valve registry. Circulation 2012; 126:2335–44.

KEY WORDS Lotus device, transcatheter aortic valve replacement, valve-in-valve TAVR